

AMENDMENTS TO THE CLAIMS

1-8 (cancelled)

9 (New). A method for producing a three-dimensional periodic structure comprising:
providing a three-dimensional periodic structure of photocured resin containing voids
and at least one partition dividing the three-dimensional periodic structure into first and
second periodic areas having voids;

introducing a first curable substance into voids in the first area of the structure and a
second curable substance into voids in the second area; and

curing the first and second substances,

wherein (a) the first and second substances have different dielectric constants, (b) the
first and second periodic area have different periods or (c) both.

10 (New). The method for producing a three-dimensional periodic structure of claim
9, wherein each period is 0.1 to 30 mm.

11 (New). The method for producing a three-dimensional periodic structure of claim
9, wherein the three-dimensional periodic structure provided has at least second partition
separating said second area from a third periodic area having voids; and

introducing a third substance into voids in the third area of the structure,

in which the adjacent periodic areas have (a) substances of different dielectric
constants, (b) different periods or (c) both.

12 (New). The method for producing a three-dimensional periodic structure of claim
11, wherein the ratio of average periodic area dielectric constants between adjacent areas is
2.0 or less.

13 (New). The method for producing a three-dimensional periodic structure of claim 12, wherein the ratio of dielectric constants between adjacent areas is 1.6 or less.

14 (New). The method for producing a three-dimensional periodic structure of claim 11, wherein substances employed are such that the ratio of the average periodic area dielectric constant between adjacent areas increases from a first end of the structure to an opposite second end of the structure.

15 (New). The method for producing a three-dimensional periodic structure of claim 9, wherein in each area, the dielectric constants of the photocured resin and substance in the voids are different.

16 (New). The method for producing a three-dimensional periodic structure of claim 9, further comprising forming the structure by sequentially irradiating a first photocurable resin to form said first areas, providing the first partition, providing a second photocurable resin on the first partition, and irradiating said second photocurable resin.

17 (New). The method for producing a three-dimensional periodic structure of claim 16, further comprising providing a second partition, providing a third photocurable resin on the second partition, and irradiating said third photocurable resin.

18 (New). The method for producing a three-dimensional periodic structure of claim 9, wherein introducing substance into the voids comprises vacuum degassing.

19 (New). The method for producing a three-dimensional periodic structure of claim 9, wherein each substance comprises a combination of a resin and ceramic particles.

20 (New). The method for producing a three-dimensional periodic structure of claim

19, wherein the first and second substances have different concentrations of ceramic particles.

21 (New). A method for producing a three-dimensional periodic structure comprising:
providing a three-dimensional periodic structure of photocured resin containing voids and a plurality of partitions dividing the three-dimensional periodic structure into a plurality of periodic areas having voids, the voids in each area containing a curable substance; and
curing the substance in the voids;
wherein adjacent periodic areas have (a) substances of different dielectric constants in the voids, (b) different periods or (c) both.

22 (New). The method for producing a three-dimensional periodic structure of claim 21, wherein each period is 0.1 to 30 mm.

23 (New). The method for producing a three-dimensional periodic structure of claim 22, wherein the photocurable resin and substances are such that adjacent period areas have different average periodic area dielectric constants and the ratio of dielectric constants between adjacent areas is 2.0 or less.

24 (New). The method for producing a three-dimensional periodic structure of claim 23, wherein in each area, the photocurable resin and substances are such that the dielectric constants of the photocured resin and substance in the voids are different.

25 (New). The method for producing a three-dimensional periodic structure of claim 24, wherein each of said substances comprises a combination of a resin and ceramic particles.

26 (New). The method for producing a three-dimensional periodic structure of claim 25, wherein each of said substances comprises a combination of a polyester resin and ceramic titanate particles and in at least two of said substances, the concentrations of ceramic particles is different.

27 (New). The method for producing a three-dimensional periodic structure of claim 26, further comprising forming the structure by sequentially irradiating a photocurable resin to form a first periodic area; providing a partition; providing a photocurable resin on the partition; irradiating the resin; and repeating the sequence of providing a partition, providing a photocurable resin and irradiating the resin at least once.

28 (New). The method for producing a three-dimensional periodic structure of claim 21, wherein the periodic areas have different periods and the average periodic area dielectric constant of the plurality of areas is the same.